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Le rapport fait état d'une relance qui s'inscrit à la suite d'une enquête otolaryngologique menée au cours de l'année 1972 auprès de la population inuit de la Zone de Baffin sous les auspices du "McGill University-Baffin Zone Project" à la demande du ministère canadien de la Santé et du Bien-être. L'objectif de l'enquête-relance consistait à mesurer l'étendue et la direction du changement survenu dans l'état des maladies auditives et des surdités chez les enfants du primaire à Frobisher Bay.

Elle comprenait deux parties: 1. la première portait sur la prédominance des problèmes chez les enfants nés durant la période 1960-64 et 1965-69; 2. la seconde portait sur la comparaison des résultats obtenus lors du premier examen en avril 1972 et au moment de la relance, 14 mois plus tard. A cause du déplacement de certaines familles vers les lieux de campement de la saison estivale, seulement 80% de la population scolaire visée a pu être étudiée.

L'étude des résultats amène à suggérer que les maladies auditives se déclarent entre 0 et 5 ans et que leurs causes possibles sont liées, en bonne partie, à l'état déficient de l'habitation, de l'environnement immédiat, de l'hygiène et de la nutrition. En plus d'agir sur l'amélioration des conditions de vie, pour diminuer l'incidence de ces maladies, il faudrait pouvoir fournir les soins appropriés dès l'apparation de la maladie et au cours de son évolution.

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EAR DISEASE AND HEARING LOSS AMONG THE ESKIMO CHILDREN ATTENDING THE ELEMENTARY SCHOOL IN FROBISHER BAY

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Survey undertaken 18th-22nd June, 1973.

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This study is a continuation of the work undertaken by previous teams from the Department of Otolaryngology, and concludes the comprehensive survey of hearing loss and ear disease.

INTRODUCTORY NOTE

The purpose of the present study was to investigate the extent and direction of change in the ear disease and hearing loss among elementary school children in Frobisher Bay. There were two parts to the survey: the first part was concerned with the prevalence of the problems among children born during the period 1960-64 inclusive and 1965-69 inclusive; the second part of the study was concerned with a comparison of results obtained during April 1972 and during the present study undertaken 14 months later.

CHARACTERISTICS OF THE POPULATION IN JUNE 1973

1. External Ear Canal

The majority of ears were clear in both age groups as shown in Table 1. The proportion of ears containing oovaloo, wax, pus or a foreign body was not unlike that found in the previous survey which indicates that matter in the external ear canal tends to accumulate over a relatively short time span. More boys than girls had ear canals occluded even though the ears of the children of either sex were left clear following the previous survey. In only one case was it impossible to remove matter obstructing the tympanum. In all other cases ear canals were again left clean.

Table 1

Percent of clear external ear canals and those containing oovaloo, wax, pus or a foreign body.

	Boys		Girls	
	1960-64	1965-69	1960-64	1965-69
No. examined	140	106	142	106
Clear	67.14%	58.49%	81.69%	61.32%
Oovaloo	11.43	9.43	9.15	19.81
Pus	14.29	23.58	7.04	16.04
Wax	6.43	6.60	2.11	2.83
Foreign Body	0.71	1.89	0	0

2. Tympanum

The results of otoscopic examination are provided in Table 2. The majority of children had bilaterally normal ears. A greater proportion of girls than boys had bilaterally normal tympani. Chronic ear disease was more common among boys than among girls.

3. Noses

Dry and crusty noses were commonly observed in other surveys which were undertaken during the winter months. On this occasion noses tended to be discharging watery mucous. The contrast was clearly due to different atmospheric conditions prevailing in summer and in winter. No evidence of nasal allergy was observed.

4. Teeth

The majority of teeth were in good or fair condition, as most children have received a considerable amount of dental treatment. It was clear that the condition of the mouth was in no way related to the presence or absence of ear disease.

5. Tonsils

As shown in Table 3 the majority of the children examined had small tonsils. No acutely infected tonsils were observed. Whereas seven girls in the group studied had had tonsils removed, only one boy had undergone tonsillectomy.

Table 2

Results of otoscopic examinations.

	Boys		Girls	
	1960-64	1965-69	1960-64	1965-69
No. of ears examined	140	106	142	106
Bilaterally Normal	37.14%	41.51%	56.34%	77.36%
Unilaterally Normal	10.00	7.55	8.45	4.72
Minimal Scarring	12.14	6.60	16.20	4.72
Maximal Scarring	3.57	1.89	0.70	0
Serous Otitis Media	0.71	1.89	0	0
Acute Otitis Media	0	0	0	0
Chronic Otitis Media	12.14	20.75	9.86	8.49
Chronic Suppurative Otitis Media	24.29	19.81	8.45	3.77
Not Visualised	0	0	0	0.94

Table 3

Results of examination of tonsils.

	Boys		Girls	
	1960-64	1965-69	1960-64	1965-69
No. examined	70	53	71	53
Small	67.14%	71.70%	60.56%	84.91%
Medium	30.00	24.53	28.17	13.21
Large	1.43	3.77	1.41	1.89
Acute	0	0	0	0
Removed	1.43	0	9.86	0

6. Palpable Cervical Glands

Palpable cervical glands were found in the majority of children. The majority of their glands were small.

7. Hearing Loss

Hearing loss was predominantly conductive and secondary to ear disease. In the majority of children hearing loss, when present, was not severe. In only 21 cases hearing loss in excess of 30 dB in all frequencies was noted, and for the 18 children not already wearing hearing aids, these were recommended. In five cases of children under 14 years of age severe sensorineural loss for the high frequencies secondary to noise exposure was found. All were males and all had a history of extensive use of rifles and snowmobiles.

8. Hearing Aids

The following children were found to require hearing aids:

Peter Nowla	M	12.9.61
Shaa Shaw	M	17.10.65
Etoosajuk Boaz	M	27.4.61
David Gordon	M	31.12.62
Jerry Ell	M	25.1.61
Symatuk	F	21.3.64
Annie Jonah	F	15.1.61
Ipeelie Oonga	F	16.6.62

	Jamie Seepee	M	11.9.63
	Simatita	F	8.10.63
*	Siyla Itorcheak	F	19.4.64
	Netchik	F	8.2.64
	Pheeleepee	M	30.5.63
*	Pudloo Lucassie	M	31.5.65
	Jomee Kilabuk	M	22.1.62
	Pootoogoo Noah	M	7.7.58
	Nowdluk Akpik	M	4.9.61
	Adla Ittoacheak	M	18.6.61
	Kooyuk	M	29.3.67
	Martha Peter	F	5.6.59
*	Pudloo Mitsima	M	13.3.59

* Already has a hearing aid.

9. Caucasians

There were 109 Caucasian children attending the school who were also examined. It is remarkable that in this number only one had ear disease. This was a mild serous otitis media.

COMPARATIVE DATA: APRIL 1972 / JUNE 1973

The results of our comparison are shown in Table 4. No child who was not formerly found to have ear disease or a hearing impairment secondary to ear disease had acquired either during the 14 month period which had elapsed between the surveys. The fact that no new case of ear disease was found, while the prevalence of ear disease was so high, is remarkable. This points clearly to the origin of the disease in early childhood, i.e. in the first five years of life. There was no significant difference in the proportion of children whose ear disease ameliorated or worsened in relation to age. In other words, a small proportion of children in each age group was found to improve and worsen over the 14 month period. There was, however, a tendancy for more ears to improve than to deteriorate.

With respect to hearing levels the majority of children were found to have the same degree of hearing loss in 1973 as in 1972. In the older age group significantly more improved (13.27% in the 1960-64 as compared with 5.2% in the 1965-69 age group), but more (7.11% as compared with 4.39%) also had a worse hearing loss. Again, no child who had passed the screening in the earlier survey was found to have acquired a significant conductive hearing loss after 14 months between studies had elapsed. Sensorineural impairment in the cases who suffered noise-indiced hearing loss had nevertheless increased over that period.

Table 4

Comparison of hearing levels and state of tympani: April 1972/ June 1973. Data pooled for boys and girls.

	1960-64	1965-69
Hearing Level		
No. of ears examined	211	114
Same	79.62%	90.35%
Better	13.27	5.26
Worse	7.11	4.39
State of Tympanum		
No. examined	208	109
Same	81.73%	81.65%
Better	13.46	12.84
Worse	4.81	5.50

INCIDENTAL DATA

In addition to studying children born in the decade beginning 1960, we saw 17 cases born in the decade beginning 1950. Results were similar to those obtained with the larger group.

A further study of ear disease and hearing loss was undertaken in the Apex school. A total of 65 children were examined. With the exception of the ten children from Frobisher Bay attending a special class in the Apex school, ear disease and hearing loss in this school population was minimal. In other words the children residing in Apex were found to be much healthier than the school population studied in Frobisher Bay.

CONCLUDING REMARKS

It should be noted that only about 80% of the elementary school population in the age group were studied. Absence from school during the last few weeks of the school year was at a high level for a variety of reasons including the movement of some families to summer camping quarters.

In the case of the comparative study, fewer cases were seen than anticipated due to the extreme difficulties in correlating records obtained during the 1972 study with those of children currently enrolled in the school. Many of

the children had left the school and many of those who were present could not be identified with certainty due to the Disk Number no longer being used and no alternative source of absolute identification being available. In fact a Medicare Number is available for each Eskimo, but the school staff was unaware of this possible source of identification which is essential in a milieu where names are changed almost as frequently as underwear, and birth dates are frequently reported inaccurately.

Our reflections on the data obtained lead us to suggest that ear disease has its onset in the 0-5 year old population, but the causes of ear disease (which are not well correlated with the extent of hearing loss) have yet to be established. There are many possible causes, such as housing (overcrowding is widespread), environment (Eskimo homes are not as conducive to health as those occupied by Caucasians), hygiene (considerably less water is used by Eskimos than by Caucasians), nutrition (the Eskimo's diet contains much less protein and vitamins than formerly). Some Eskimo families are exposed to additional environmental hazards which do not affect the Caucasian population. We noted decaying carcases, rotting garbage and untreated sewage were commonly to be found in close proximity to many Eskimo homes, particularly those along the shoreline. We believe that ear disease and the relatively poor resistance of the Eskimo to it, probably lies in an interaction between several of the variables mentioned above.

We also consider that while the extent of ear disease might be lessened by appropriate measures, such as attention to hygiene, housing, diet, environmental hazards, etc., the most appropriate way to reduce its prevalence could be to provide special ear care for children at the onset of the disease and throughout its course.

As a first step we propose that a nurse be trained and employed to administer prescribed ear treatment for a period of at least two years. With the prevalence of hearing loss in the population such a measure would require at least half-time employment of a suitably qualified nurse. Such a person (Linda Nelson, R.N.) is available at the moment in Frobisher Bay for such a project. This work should be supervised by one of us (A.K.) and the nurse would be responsible to the Nurse-in-Charge, Frobisher Bay Health Centre. Dr. A.T.D. Williams has approved such a treatment scheme in principle.

The overall importance of ear disease and hearing loss in the Eskimo population cannot be minimised. Many children are suffering learning deficits as a result of both variable and permanent hearing impairments. These cause not only educational problems, but emotional and social disorders too. Indeed one class which was specifically structured to include children with these disorders was found by the writers to comprise those children with the worst problems of ear disease and hearing loss in the population.

To date only one child in Frobisher Bay and one in Apex previously issued with a hearing aid no longer required it. Nevertheless with the appropriate medical treatment one could envisage the situation where hearing would improve and permit hearing aids to be returned for re-issue. The decision to recommend 18 new hearing aids was based on the finding that these children with hearing losses predicted to be temporary in the initial survey (April 1972), in fact were suffering from hearing impairment of an equal or greater degree at the time of this study and had acquired further educational deficits as a result.

In general our impression is that little more can be learned from mass survey work. This type of work has provided the required details on prevalence of ear disease and hearing loss in the Eskimo population of the Baffin Zone, but a series of well-designed clinical research studies should now be considered as a priority measure. These would include the study on nutrition, as proposed by Dr. Manning, and the study on ear treatment, as mentioned above. The only reason for further survey work would be the evaluation of experimental and treatment procedures. These will be suggested in more detail in the global report of the surveys currently being prepared by Dr. Baxter and Dr. Ling.